

# SAMPLE QUESTION PAPER 1

A Highly Simulated Sample Question Paper for ISC Class XII

## MATHEMATICS (Fully Solved)

### GENERAL INSTRUCTIONS

1. The Question Paper consists of three sections A, B and C.
2. Candidates are required to attempt all questions from **Section A** and all questions **either** from **Section B** or **Section C**.
3. **Section A**: Internal choice has been provided in two questions of two marks each, two questions of four marks each and two questions of six marks each.
4. **Section B**: Internal choice has been provided in one question of two marks and one question of four marks.
5. **Section C**: Internal choice has been provided in one question of two marks and one question of four marks.
6. All working, including rough work, should be done on the same sheet as, and adjacent to the rest of the answer.
7. The intended marks for questions or parts of questions are given in brackets [ ].
8. Mathematical tables and graph papers are provided.

Time : 3 Hours

Max. Marks : 80

### Section A (65 Marks)

1. In sub-parts (i) to (x) choose the correct option and in sub-parts (xi) to (xv), answer the questions as instructed. [15 × 1]

X (i) If the binary operation  $*$  defined on  $\mathbb{Q}$ , is defined as  $a * b = 2a + b - ab$ ,  $\forall a, b \in \mathbb{Q}$ , then the value of  $3 * 4$  is:

- (a) 2 (b) -2 (c) 3 (d) -3

(ii) Let  $A = \{1, 2, 3, \dots, n\}$  and  $B = \{a, b\}$ . Then, the number of surjection from  $A$  into  $B$  is

- (a)  $nP_n$  (b)  $2^n - 2$  (c)  $2^n - 1$  (d) None of these

(iii) Value of  $\sin\left(2\sin^{-1}\frac{3}{5}\right)$  is

- (a)  $\frac{12}{25}$  (b)  $\frac{24}{25}$  (c)  $\frac{13}{25}$  (d)  $\frac{17}{25}$

O (iv) If  $A = \begin{bmatrix} 2 & 3 \\ 1 & 2 \end{bmatrix}$ ,  $B = \begin{bmatrix} 1 & 3 & 2 \\ 4 & 3 & 1 \end{bmatrix}$ ,  $C = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$  and  $D = \begin{bmatrix} 4 & 6 & 8 \\ 5 & 7 & 9 \end{bmatrix}$ , then which of the sum is defined?

- (a)  $A + B$  (b)  $C + D$  (c)  $B + C$  (d)  $B + D$

O (v) If  $\begin{bmatrix} 1 & 2 \\ -2 & -b \end{bmatrix} + \begin{bmatrix} a & 4 \\ 3 & 2 \end{bmatrix} = \begin{bmatrix} 5 & 6 \\ 1 & 0 \end{bmatrix}$ , then  $a^2 + b^2$  is equal to

- (a) 20 (b) 22 (c) 12 (d) 10

# Maths Paper1 Nated

**SJ Ball**



## **Maths Paper1 Nated:**

*A Collection of Cambridge Mathematical Examination Papers: Papers in pure mathematics* John Martin Frederick Wright, 1833      **Queen's Papers in Pure and Applied Mathematics** Queen's University (Kingston, Ont.), 1966

Explanation and Proof in Mathematics Gila Hanna, Hans Niels Jahnke, Helmut Pulte, 2009-12-04 In the four decades since Imre Lakatos declared mathematics a quasi empirical science increasing attention has been paid to the process of proof and argumentation in the field a development paralleled by the rise of computer technology and the mounting interest in the logical underpinnings of mathematics *Explanation and Proof in Mathematics* assembles perspectives from mathematics education and from the philosophy and history of mathematics to strengthen mutual awareness and share recent findings and advances in their interrelated fields With examples ranging from the geometrists of the 17th century and ancient Chinese algorithms to cognitive psychology and current educational practice contributors explore the role of refutation in generating proofs the varied links between experiment and deduction the use of diagrammatic thinking in addition to pure logic and the uses of proof in mathematics education including a critique of authoritative versus authoritarian teaching styles A sampling of the coverage The conjoint origins of proof and theoretical physics in ancient Greece Proof as bearers of mathematical knowledge Bridging knowing and proving in mathematical reasoning The role of mathematics in long term cognitive development of reasoning Proof as experiment in the work of Wittgenstein Relationships between mathematical proof problem solving and explanation *Explanation and Proof in Mathematics* is certain to attract a wide range of readers including mathematicians mathematics education professionals researchers students and philosophers and historians of mathematics

Monthly Catalog of United States Government Publications United States. Superintendent of Documents, 1990

**Fundamental Conceptions of Modern Mathematics** Robert P. Richardson, Edward H. Landis, 1916      *Parallel Processing and Applied Mathematics* Roman Wyrzykowski, Jack Dongarra, Konrad Karczewski, Jerzy Wasniewski, 2012-07-03 This two volume set LNCS 7203 and 7204 constitutes the refereed proceedings of the 9th International Conference on Parallel Processing and Applied Mathematics PPAM 2011 held in Torun Poland in September 2011 The 130 revised full papers presented in both volumes were carefully reviewed and selected from numerous submissions The papers address issues such as parallel distributed architectures and mobile computing numerical algorithms and parallel numerics parallel non numerical algorithms tools and environments for parallel distributed grid computing applications of parallel distributed computing applied mathematics neural networks and evolutionary computing history of computing      Fundamental

Conceptions of Modern Mathematics ...: Variables and quantities, with a discussion of the general conception of functional relation. 1916 Robert Porterfield Richardson, Edward Horace Landis, 1916

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from 2015 to 2022 The detailed solutions to each question is provided immediately after the papers 100% Errorless solutions provided 1500 previous year quality questions with expalnation      Teaching Secondary Mathematics Douglas K. Brumbaugh,David Rock,2006 Grounded in research and theory this text for secondary mathematics methods courses provides useful models of how concepts typically found in a secondary mathematics curriculum can be delivered so that students develop a positive attitude about learning and using mathematics in their daily lives      *A History of Mathematical Notations: Notations mainly in higher mathematics* Florian Cajori,1929      **Resources in Education** ,2000-10      **FTCE Mathematics 6-12 (026) 3rd Ed., Book + Online** Sandra Rush,2018-10-20 REA s FTCE Mathematics 6 12 026 Test Prep with Online Tests Gets You Certified and in the Classroom Updated Third Edition This new third edition of our FTCE Mathematics 6 12 test prep is designed to help you master the competencies tested on this challenging exam It s perfect for teacher education students and career changing professionals who are need certification to teach mathematics in Florida s secondary schools Written by Sandra Rush M A math test expert author tutor and private test prep coach our test prep covers all the relevant topics with expert score raising strategies developed just for the FTCE Math test Our targeted review covers the 10 competencies tested knowledge of algebra advanced algebra functions geometry coordinate geometry trigonometry statistics and probability calculus mathematical reasoning and instruction and assessment End of chapter practice reinforces key concepts and helps you evaluate your overall understanding of the subject An online diagnostic test pinpoints your strengths and weaknesses so you can focus your study on the topics where you need the most review Two full length practice tests available in the book and online offer realistic practice and are balanced to include every type of question and skill tested on the actual exam Our online tests are offered in a timed format with automatic scoring and diagnostic feedback to help you zero in on the topics and types of questions that give you trouble now so you can succeed on test day This test prep is a must have for teacher certification candidates in Florida REA s book online prep packages are teacher recommended and are proven to be the extra support teacher candidates need to pass their challenging certification exams      *The Messenger of Mathematics* ,1880      **Documents of the Assembly of the State of New York** New York (State). Legislature. Assembly,1914      *Mathematics and Democracy* Steven J. Brams,2009-12-02 Voters today often desert a preferred candidate for a more viable second choice to avoid wasting their vote Likewise parties to a dispute often find themselves unable to agree on a fair division of contested goods In *Mathematics and Democracy* Steven Brams a leading authority in the use of mathematics to design decision making processes shows how social choice and game theory could make political and social institutions more democratic Using mathematical analysis he develops rigorous new procedures that enable voters to better express themselves and that allow disputants to divide goods more fairly One of the procedures that Brams proposes is approval voting which allows voters to vote for as many candidates as they like or consider acceptable There is no ranking and the candidate with the most votes wins The voter no longer has to consider whether a vote for a

preferred but less popular candidate might be wasted In the same vein Brams puts forward new more equitable procedures for resolving disputes over divisible and indivisible goods **American Journal of Mathematics** ,1924 **Projects and Publications of the National Applied Mathematics Laboratories** ,1964 **Parliamentary Papers** Great Britain. Parliament. House of Commons,1903 *Eastern European Mathematics Education in the Decades of Change* Alexander Karp,2020-05-04 This contributed volume is devoted to the recent history and evolution of mathematics education in Eastern Europe exploring how it was influenced by social and political changes in this part of the world Despite the broad recognition of the importance of these changes little scholarship exists that examines the ways in which they were followed by changes in the teaching of mathematics in the post socialist countries Indeed the analyzed processes are complex and vary across the states Accordingly this book touches on many factors including differences in cultures and traditions that find expression in the teaching of mathematics Specifically this volume seeks to explore what changes there were in education in general and in the position of mathematics in school education in these years and how these changes may be explained and documented what changes there were in the content of mathematics education and its assessment and how were they motivated and adopted what new textbooks appeared and what new methodological ideas were offered in them how and why mathematics teacher education and or professional development changed what was the role if any of foreign influences on mathematics education etc The book will be of interest to both researchers in mathematics education and practitioners teachers as well as a broader audience of historians and educators exploring the political aspects of education Leśniewski's Systems of Logic and Foundations of Mathematics Rafal Urbaniak,2013-09-24 This meticulous critical assessment of the ground breaking work of philosopher Stanislaw Le niewski focuses exclusively on primary texts and explores the full range of output by one of the master logicians of the Lvov Warsaw school The author s nuanced survey eschews secondary commentary analyzing Le niewski s core philosophical views and evaluating the formulations that were to have such a profound influence on the evolution of mathematical logic One of the undisputed leaders of the cohort of brilliant logicians that congregated in Poland in the early twentieth century Le niewski was a guide and mentor to a generation of celebrated analytical philosophers Alfred Tarski was his PhD student His primary achievement was a system of foundational mathematical logic intended as an alternative to the Principia Mathematica of Alfred North Whitehead and Bertrand Russell Its three strands protothetic ontology and mereology are detailed in discrete sections of this volume alongside a wealth other chapters grouped to provide the fullest possible coverage of Le niewski s academic output With material on his early philosophical views his contributions to set theory and his work on nominalism and higher order quantification this book offers a uniquely expansive critical commentary on one of analytical philosophy s great pioneers

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